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PHILADELPHIA MEDICAL SOCIETY,

PURSUANT TO APPOINTMENT.

By R. LA ROCHE, M. D.

HONORARY MEMBER OF THE SOCIETY, MEMBER OF THE AMERICAN
PHILOSOPHICAL SOCIETY, &c.

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TO
NATHANIEL CHAPMAN, M. D.

PROFESSOR OF THE INSTITUTES AND PRACTICE OF MEDICINE AND
CLINICAL MEDICINE, IN THE UNIVERSITY
OF PENNSYLVANIA, &c.

Dear Sir—To no one can I, with more propriety, offer the dedication of the following pages, than yourself. Called many years ago by your talents, to fill one of the most important Chairs in the University of Pennsylvania, you have ever since shown yourself the generous patron of a science you cultivate with such signal success; and on many occasions your disinterestedness and liberality have been evinced in the most conspicuous manner.

That this is not the language of adulation, every one will be convinced who is informed, that about four years ago you requested the Trustees to appoint an Adjunct to your Chair to teach the Institutes of Medicine, which the extensiveness of your course prevented you from entering upon as largely as was necessary, and that reiterating the same request at a later period, you very generously offered to compensate, yourself, the teacher that would be selected.

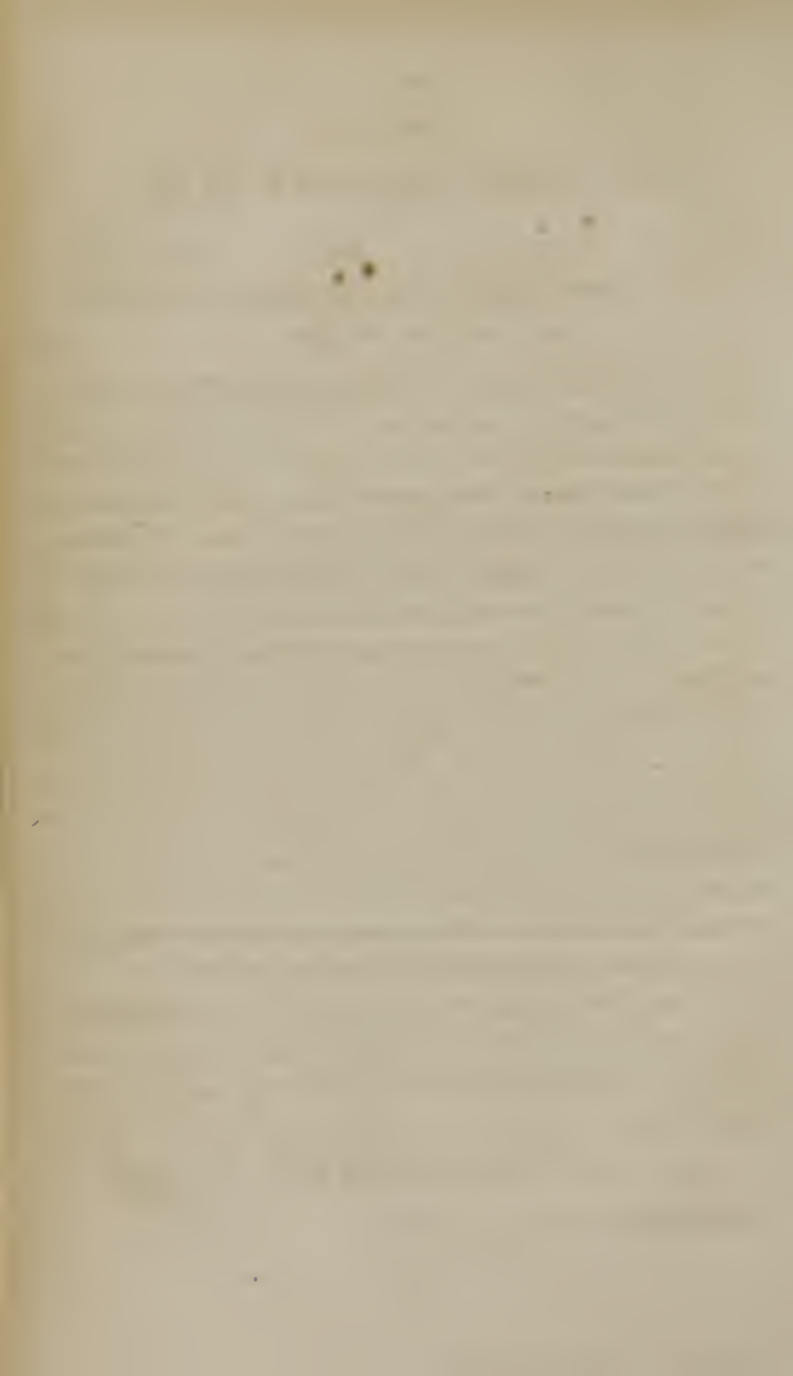
Although your efforts on these occasions have failed, you are not the less entitled to the warmest gratitude of every sincere friend of the science, for the zeal you thus manifested for the promotion of physiological and pathological knowledge among us.

With the most sincere wishes for the continuance of your health and happiness,

I remain, very respectfully, yours,

R. LA ROCHE

Philadelphia, February 24, 1827.



PREFACE.

IN the following pages, the author has endeavoured to convey his opinion, and that of many of his friends, relative to the importance of one of the most interesting branches of Medical Science,—Physiology,—without aiming at originality, either in his arguments or in the manner of enforcing them. The work of Mr. Prus, in which we find a very spirited attack on the application of Physiology to the science of disease, having been criticised by several writers in some of the French medical periodicals, though more particularly by Broussais himself, and Mr. Miquel's "*Lettres à un Médecin de Province*," having likewise been analysed by Mr. Roche, in a late number of the "*Archives Générales de Médecine*," it would have been impossible to go over the same ground, and at the same time do justice to the subject, without occasionally touching on many of the points already examined by these authors, or making use of facts and arguments employed by them in refutation of the same erroneous views.

Governed by this belief, the author has not scrupled to borrow from Broussais and Roche, whenever the elucidation of his subject appeared to require it; and hopes that this explanation will be received as a sufficient apology for so doing, and entirely shield him from the accusation of plagiarism.



AN

ORATION.

GENTLEMEN,

IN appearing before you, at your request, to fulfil the duties of an honourable appointment, it is not my intention to occupy the time allotted to me with a retrospection of what has been achieved in medicine; but rather with a few remarks on what *ought* to be done by every one who wishes to cultivate our profession with honour to himself and safety to those confided to his care. Nor must you expect here an extended discourse on any point of medical ethics, or on the preparatory studies of those who are about to enter on the rugged path of the science. Important as these subjects doubtless are, they have so frequently constituted the theme of my predecessors, and have by them been treated, on many occasions, so fully and with so much ability, that I have been induced to think, I would better meet the views of the society, and at the same time prove more useful to the younger part of this audience, by selecting a subject equally interesting to all who aspire to the honour of the doctorate; but the importance of which, it is to be regretted, has but too often been overlooked, even by those whose sacred duty it should be to enforce it on the mind of the youthful aspirant.

It has often been remarked, particularly by those who, in affecting to undervalue the great importance of the healing art, imagine they lay some claims to the credit of philosophical scepticism, that notwithstanding the centuries that have passed away, since it first assumed a rank among the objects of liberal investigation, medicine has made but a small progress towards perfection; and, indeed, that when compared with its subordinate branches, or even with most of the other sciences, it may still be regarded as in a state of infan-

cy. Painful as the concession may be, candour must compel us to admit, that to a certain extent the charge is not destitute of foundation; since on a strict inquiry into what has been achieved in the exact, natural and moral sciences, and into what had been done in medicine before the commencement of the present century, we discern a vast difference in the results, and that the advancement of the latter had not been proportioned to the zeal and talents of its promoters, nor to the importance of its application. But those who, from this slow progress, have been induced to deny the certainty of our art, or who have ever appeared willing to call in question its great usefulness, have in general done little more than repeat what had been said many years ago, and do not seem to have kept pace with the improvements made, within the last half century, in all the branches of the medical science, and more particularly in Physiology and Pathology.

Were not the subject I have selected for your particular consideration, by itself of sufficient extent and importance, to occupy our time, it would not be uninteresting to point out in detail the causes that have been most effective in this comparatively slow advance of medicine. Restricted as we are, a few cursory remarks only can, therefore, be offered on this subject, for the more perfect elucidation of those which are to follow. Of all those causes, the only one to which it will be necessary to allude in this place, is the fondness which the members of our profession have usually displayed for theory and hypothesis; a fondness which, from the days of Pliny, Lesage, and Moliere, has been ridiculed by every writer who has made medicine or its cultivators the subject of his mirth; and indeed, on an impartial examination of the question, and on a careful study of medical writings, from the age of Hippocrates down to the present time, we shall find sufficient and convincing proofs that to this propensity to speculation, may fairly be ascribed no inconsiderable share of detriment to the improvement of the science. Yet in defence of the members of our profession it may, I believe, be affirmed, that this disposition appears to be inherent in the human mind, and has in general been displayed to greater extent in proportion to the obscurity in which the subject investigated was involved,—men theorizing most on the subjects they least comprehend.

Consult the annals of all the sciences, gentlemen, and you will, without difficulty, discover, that this love for speculation, so unre-

servedly charged on physicians, is far from being peculiar to them; and it does not require much attention to find, that if by them it has been displayed to a great and sometimes even to a reprehensible extent, the fault should be ascribed to the peculiar nature of the subject they are called upon to investigate;—the laws by which the human system is regulated in health, and their deviation in disease, being more difficult to understand and explain, than those of inorganic matter and of states, and thereby allowing a wider scope for the exercise of the imagination. But although prepared to admit, that this unrestrained fondness for speculation has been a fruitful source of injury to the progress of medicine, I am far from feeling disposed to coincide in sentiment with those who deny, in the most unqualified terms, the utility of theory, and affect to rely exclusively on experience. At all times, and in every enlightened country, theory has been admitted, by judicious minds, to be indispensably necessary in every department of human knowledge, and this opinion, which applies with equal force to the sciences generally, does so in a more especial manner to the one which it is our province to cultivate, as in this the mere detail of solitary or unconnected facts can prove of little or no real utility, and “must slide imperceptibly down the tide of oblivion.”

Of the correctness of this opinion, a few remarks will, I trust, be sufficient to convince every unprejudiced mind. Thus it is a fact, sufficiently obvious even to the most common observer, that no two individuals possess precisely equal degrees of physical and mental energy. Human temperaments, also, although susceptible of several grand divisions, are found to present innumerable shades of difference in various subjects, and each human being manifests a peculiar idiosyncrasy. Aware of these circumstances, it will not be difficult to understand, that a disease attacking individuals so variously organized, will be modified to such a degree, as to be viewed by inexperienced observers as dissimilar, whereas it will be considered in each, by one accustomed to generalize, as a mere shade of the same complaint; cases of similar nature or not, must be compared; their points of analogy, if any such exist, must be carefully noted, in order that these cases may be referred to a distinct class, and submitted to a particular and appropriate mode of treatment, or arranged with other cases of a different nature, and requiring a corresponding difference in the curative plan. The actions of general and particular causes must be studied, in reference to their effects on various or-

gans and tissues of the body; the action of remedial agents on different individuals and diseases, and at different periods of the same disease;—the modifications of this action occasioned by differences of constitution, temperament, and idiosyncrasy, should be distinctly observed, in order that the physician may be enabled to resort to these agents, in proper cases, and under appropriate circumstances, and abstain from them in affections of a different kind; the nature of the disease must, if possible, be ascertained, so that symptoms arising from a peculiar state of the organs, may not be confounded with such as arise from a contrary condition of the same parts, and demand a corresponding difference in the method of cure; or may not induce the physicians to believe in the existence of one state of the system, whilst in truth the contrary is the real nature of the case. In the examination of symptoms also, those depending on primary affections must be carefully distinguished from such as are the results of a secondary or sympathetic disturbance of the organs. In fine, gentlemen, he who lays some claims to the appellation of philosophical physician, should reason on what he sees, and deduce principles capable of guiding him in his future conduct; but the act of the mind by which this is effected, is that of theorizing—reasoning in medicine having, with great propriety, been regarded at all times as synonymous with theory.

So natural, indeed, is it to theorize, that the mere empiric who contents himself with applying a remedy to a symptom, without reference to the origin of the latter, or to the condition of the organ which is to receive the primary or secondary impression of his nostrum, as well as the oldest and most ignorant gossip who is never at a loss to indicate an infallible cure for every disease, entertain some opinion respecting the nature of the case, or the *modus operandi* of the drugs about to be administered. It must be evident, that in doing this, such persons *theorize*, and that their theories can only differ from those of the enlightened pathologist, in not being founded on a correct view of the animal economy, in its normal or abnormal state. Nor is the necessity of theories less positively shown by the circumstances, that even those physicians, who have insisted with the greatest warmth of expression on their inutility, have frequently been foremost among such as have indulged in them to a reprehensible extent. This observation, which was originally made many years ago by La Caze, might, did time permit or the occasion require, be with-

out difficulty illustrated by a reference to the writings of these champions of empirical observation.

The great dislike which some physicians manifest for theory, arises from the misapplication that has been made of this term; for under it the mere vagaries of a fertile imagination have not unfrequently been classed. But such speculations, which confessedly have been productive of no small degree of injury to the science, should hardly be designated by that title. They are in truth to be viewed in the light of mere hypotheses, between which and the former there exists a difference too often overlooked; for, as Mr. Abernethy has well remarked, by the former of these words is meant a rational explanation of the cause or connexion of an apparently full or sufficient series of facts; and by hypothesis, a conjecture concerning subjects in which the series of facts is obviously incomplete. The same celebrated individual, whose reputation is unknown to no one among us, and who is deservedly held as occupying an elevated rank among the medical philosophers of the age, has expressed in the following language his decided testimony in favour of the necessity of theory: "The greatest philosophers were, through the whole course of their inquiries and demonstrations, theorists. Theory, according to my conception of the word, means nothing more than thinking correctly, in a concatenated manner." "It is scarcely necessary for me to assert that this kind of thinking is useful and productive of science. For was it not thinking in this manner on the cause of an apple falling from a tree, that led Sir Isaac Newton to ascertain the laws of attraction? Was it not thinking thus which led him to perceive that the operation of the same causes might perpetuate the regular motions of the planetary system?"

But whilst maintaining that reasoning is of absolute necessity to the pathologist, I do not wish to be understood as denying that in all ages and even in our own days, the utmost difficulty has been and continues still to be experienced in all attempts to frame a sound and useful theory,—a theory capable of embracing all the facts already collected, as well as those which an extended experience may enable succeeding observers to amass and arrange, in such a way as will aid to the establishment of a correct pathology, and consequently of a useful system of therapeutics. If, however, at the present day, and notwithstanding the extraordinary improvements that have been made in many of the subordinate

branches, and even in some of the more essential parts of the medical science, the difficulty to which I have just alluded is still felt in all its force, how much more must it not have been experienced at an earlier period, when, in consequence of causes which it is not my purpose to specify here, physiology,—the true and only sure foundation of all pathological knowledge, was yet in a state of infancy, and studied as a distinct branch susceptible only of a very limited application to the science of disease; when moreover, from deeply rooted prejudices, or a blind attachment to symptomatology, morbid anatomy was by the pathologist regarded as of secondary importance, and consigned to the mere anatomist, or was not studied with the zeal and success so essentially necessary to the attainment of a correct knowledge of the seat and nature of disease;—when in fact those who occasionally resorted to the scalpel in particular and extraordinary cases, seemed to have in view little else than the gratification of an idle curiosity, and seldom or never attempted to trace the connexion, as cause and effect, between the structural alterations discovered on dissection, and the symptoms manifested during the course of the disease.

As many of you are already aware, this appears to have been the state of medicine anteriorly to the present century;—before the labours of Bichat and a few of his successors had given to the study of physiology, morbid anatomy, and pathology, an impulse widely different from that it had received from the efforts of preceding observers,—an impulse which has led to so many and useful discoveries, as well in the general principles as in the details of these sciences, and contributed to the overthrow of the existing and superannuated doctrines, both physiological and pathological, and to the erection, on imperishable foundation, of a system of medicine, at once the most simple, the most philosophical, and the most useful. But however agreeable to me and useful to the younger members of this society, the task might be of pointing out in detail the improvements that have been made within the last thirty years, in every department of our favourite science, neither the limits of this address nor my abilities will permit me to undertake it, and my duty must be restricted to offering a few remarks on the importance of physiology in its application to pathology.

In entering on the consideration of this subject, it is necessary that we should start with a correct and fixed principle;—in the present state of our knowledge, he alone can be regarded as a truly well

informed physician, who, from a certain train of symptoms, can ascertain the cause, seat, and nature of a disease,—point out the true mechanism of the production of all its phenomena, and discern among these, such as are primary and characteristic of the complaint, from those that are of secondary importance and result from a sympathetic disturbance of various organs and tissues; and who, finally, from an attentive consideration of all these circumstances, can deduce a plan of treatment likely to meet with success the indications of the case. It must be evident to all who devote a moment's reflection to this subject, that such an extended knowledge is not to be sought for among mere symptomatologists; since, contenting themselves with applying empirically a remedy to a symptom, they close their eyes to the light shed on the science of disease by a proper application of a rational physiology, and shamefully disregard the important use of morbid anatomy, by the aid of which alone we can hope to rectify the views we had formed, from the aggregate of symptoms, relative to the seat and nature of the disease, and thereby establish rules capable of guiding us in the treatment of subsequent cases. Finally, gentlemen, it is a truth which cannot too often and too strenuously be impressed upon the mind of every physician, that physiology aided by morbid anatomy, and joined to clinical experience, must be viewed as the surest foundation for every rational and useful system of pathology.

When, however, with the importance of this reflection before us, we endeavour to investigate, with the degree of attention the subject undoubtedly deserves, what had been achieved even by the writers of the two preceding centuries in pathology,—when we carefully consult those numerous works, which a servile attachment to opinions, respectable rather for their antiquity than their intrinsic merit, had caused to be honoured with the appellation of *classical*, and to be handed down from generation to generation as the infallible guides of the physician, we are lost in astonishment at the neglect of the application of physiology to pathology. And yet the organization of man has suffered no change since the creation; he is composed of the same organs and tissues now as formerly; the same vital properties are attached to them, and preside over their functions, in health as well as in disease. If it can be shown, therefore, notwithstanding the unprecedented efforts of some moderns, whose arguments will be presently examined, that a rational system of pathology, leading to a successful practice, can

only be based, at the present time, on physiology, it follows that it should have been equally so at a former period; and consequently, that the pathological views of the older writers, deprived as they were of this foundation, are not entitled to the degree of veneration in which they appear to be held even by a few authors of the present century.

Nor is the task I have here undertaken as difficult to accomplish as might, at first, appear; for it will only be necessary to point out accurately what should be understood by health and disease, in order to show the necessity of making physiology the foundation of pathology. Proceeding therefore to the definition of these contrary states, it may be affirmed without the fear of contradiction, that health is that state in which all the functions indispensable to the maintenance of life are executed with regularity; or in other words, it is that state, in which the vital properties attached to the organs entrusted with the performance of these functions, suffer no alteration in their natural rhythm; and all the sophistry of ontologists cannot torture disease into any thing else than a derangement of one or several functions;—an augmentation or diminution,—in a word, a lesion of the vital properties of one or more organs. The most tumultuous and extraordinary morbid phenomenon cannot be viewed as the result of something *superadded* to, and having an existence independent of the tissues; but merely as the effect of a modification of the same properties which regulate the movements of the system during the calmest periods of life; and even in those instances in which a peculiar virus is introduced, it can only, like every other morbid agent, give rise to the development of disease, by deranging the regular or normal play of the same vital properties. Starting from these views of the nature of health and disease, therefore;—regarding the latter as the mere effect of a modification of the same vital properties which regulate the organic movements of the system during the enjoyment of perfect health, we shall find little difficulty in comprehending, that a perfect acquaintance with the functions in the former of these states will greatly facilitate us in our investigation into the abnormal or diseased condition of the system. From the same views it follows, moreover, that pathology, to use the language of an intelligent writer, is only a branch or a continuation of physiology, or, more properly, that the latter embraces the study of the vital actions, at all periods of our existence. We pass insensibly from the one to the other of these sciences,

in examining the functions from the moment when the organs act with the utmost regularity, to the period when their lesions have arrived to that degree of intensity capable of occasioning an alteration or even suspension of the functions, or of arresting completely the play of the vital movements.

Whilst insisting, however, on the necessity of applying physiology to the study of disease, it is very far from my desire to allude here to those crude notions which, under that title, have been handed down to us in the various treatises on that science since the time of Hippocrates;—a physiology which experience, and a more careful investigation of nature, has shown to be purely hypothetical, and which, indeed, can with no more propriety be regarded as the science of life, than the reveries of Paracelsus, of Van Helmont, or of Brown, as pathology.

For all our present purposes, physiology may with propriety be divided into three distinct and equally interesting branches; or rather the functions of our organs may be examined under three different points of view. In the first place, all that is mechanical in the function of each organ, and which is found so accurately described in the writings of the Iatro mathematicians, may be considered. For example, by an inquiry into this part of the science, we learn in what manner and to what degree the stomach concurs in the act of vomiting;—the heart and arteries in the mechanism of the circulation;—the intestines and bladder in the expulsion of their contents;—the muscles, ligaments, and bones, in the act of locomotion, &c. By the study of the second division, we become acquainted with the phenomena attendant on the most important and mysterious operations of the economy; such as the changes that occur in the food during the process of digestion; in the atmospheric air and blood during respiration; in the fluids during secretion; and in the uterine system during generation, utero-gestation, and parturition. But however interesting and important to the pathologist a perfect acquaintance with these facts may be thought, they are far from constituting the only points in the study of the living state to which his attention should be directed. So far from this, it is to the attainment of an intimate knowledge of the third division proposed of physiological studies, that his most powerful efforts should invariably tend, consisting as it does in an inquiry into the vital properties of the organs both in the normal and abnormal states: of the causes capable of modifying those properties, when

placed in contact with the surfaces of relation; of the extent and nature of this modification; of the sympathetic connexions of different parts, and of their modifications by age, sex, temperaments, idiosyncrasies, &c.; of the manner in which external agents and moral causes change the state of health to that of disease, and of other facts too numerous to be detailed in this place.

Such is the third division of physiological studies, which, according to the best modern authorities on medicine, should constitute the special study of him who aims at a knowledge of a correct pathology, and without which his best efforts towards the elucidation of disease can never be crowned with success. Having by this extended inquiry attained a knowledge of the vital properties, and of the sympathies in the normal state, and of the other phenomena I have noticed, he will be better able to discover even the slightest deviation from their natural state,—a deviation which must be viewed as one of the innumerable shades of diseased action. *He* better than any other will be able to form a correct view of the complications of disease, and of the manner in which these complications take place; of the mechanism of morbid phenomena; of the degree of importance to be attached to each symptom, and to discriminate, in every disease, primary from secondary derangements. When considered under this point of view, therefore, physiology may fairly be affirmed to be constantly in contact, as it were, with pathology, since the state of health verges on that of disease. This truth, which has been admitted even by some of the earlier writers on medicine, should, independently of any other circumstance, have been sufficient to indicate the indispensable necessity of studying physiology in its application to pathology, and not as a distinct branch of investigation, having but a slight bearing upon the knowledge of diseased actions. But although it *has* been asserted that from health to disease, the distance is short, and the transition easy, yet as the circumstance has not hitherto been clearly proved by a direct reference to facts, I should have thought it my duty to undertake the task of illustrating it here, by offering to your attention a number of examples selected from phenomena presenting themselves daily to the observations of the practitioner, were it not in my power to refer you to a work specially devoted to physiology in its relation to pathology, in which this passage from health to disease is traced in a masterly manner, and an English version of which it has been my good fortune, in conjunction with an intelligent member of this

society, to present to the medical public of the country. I allude to Broussais's Physiology. In order to show conclusively the existence of this close alliance between health and disease, and the easy transition from the one to the other of these opposite states, it will only be necessary to direct your attention to the function of digestion in its normal or healthy condition, and next point out the phenomena observable during the performance of the same process, when the stomach, from previous irritation, or the presence of indigestible or stimulating ingesta, labours under super-excitement. In this example, the transition from the state of perfect health to that of excitement, and from the latter to inflammation, could be shown to occur by insensible degrees;—proving in the most positive manner, that between a healthy and a morbid state of digestion, or rather of the organs entrusted with the performance of this function, there exists an evident and intimate connexion; the latter consisting in a derangement or irritation of the same vital properties which preside over this function during its healthy performance. The same example will serve to show, moreover, that in order to attain a more perfect knowledge of the diseases of the alimentary tube, the physician must be previously well acquainted with the healthy state of the functions of these parts; since he would otherwise be liable to fall into innumerable and fatal errors,—taking effects for causes, confounding sympathetic affections with such as are of an idiopathic nature, and treating symptoms to the total disregard of every principle of a rational and useful pathology.

It is plain, that the same reasoning may, with equal propriety, be applied to every other function of the system, and consequently, that it may safely be affirmed, that the state of health borders very closely on that of disease; that the latter consists in the derangement of the same properties as preside over the former; and finally, that pathology is founded upon and is the continuation of physiology.

As it is the principal object of this address, to illustrate the advantage that may be derived from the application of a rational physiology to the study of disease, I cannot allow the present opportunity to pass without calling your attention for a few moments to an opinion promulgated within a few years by some of the disciples of the Parisian school, and which appears to have been honoured with the sanction of some learned societies of France.

On a careful perusal of their writings, it is not difficult to perceive that the principal object these physicians had in view, was the destruction of that noble edifice, erected with so much zeal, and such signal success, by the illustrious professor of the Val de Grace—thus affording an example, of the warmest opposition to discoveries approximating us to the truth, and of which any nation should have felt proud, originating in the bosom of the very school which gave them birth. Here, however, let me state, that it is consoling, to every sincere lover of the art to reflect, that such an opposition does not necessarily ensure the condemnation of the doctrine in question, and is only a repetition of that which truth in every shape has encountered at all epochs of the world. Without calling your attention here to the opposition made during the first ages of our era, to the principles of the christian faith, I may remark that the history of every art and science furnishes us with examples illustrative of the correctness of the above assertion. What difficulties, indeed, has not the Baconian philosophy had to encounter at its origin from the adherents to the Aristotelian school;—what opposition have not the truths pointed out by Galileo experienced from the philosophers of his own and of succeeding ages; or vaccination and the discovery of Jenner from the deeply rooted prejudices of the scientific and vulgar, even in the most enlightened countries of Europe;—what difficulties have not Lavoisier and his successors experienced in their endeavours to overthrow the doctrine of Phlogiston, and establish on its ruins a more rational theory;—what illiberal opposition has not the philosophy of Dr. Gall encountered from metaphysicians of all denominations; and finally, in our own science, how laborious have not the efforts of the solidists been, in their laudable attempts to free pathology from the shackles of the Galenic doctrines!

But to return from this digression to the subject more particularly before us; whether guided by a love of truth, and a desire to promote the cause of science, or influenced by less honourable motives, the writers to whom I have above alluded, in order to accomplish with greater facility the task they had thus imposed upon themselves, have first attempted, with no little sophistry and it must be allowed sometimes with much ingenuity, to demonstrate by facts and reasoning that pathology is not founded on physiology;—that they are distinct sciences, independent of each other, and con-

sequently that all that has been said on the subject of this application by the physicians of the present and a few of the preceding centuries, is founded on erroneous views of the animal economy in health and disease. An attentive and impartial examination of the subject, however, has led me to the opinion, that it would be easy to show, by a detailed analysis of the arguments and facts advanced in support of these views, that they are totally inadequate to the object for which they were intended. But the want of sufficient time, and the firm conviction that the mantle of oblivion will soon conceal this, as it has already concealed many other efforts of the anti-physiologists, I shall content myself with a very few remarks, which I offer here, more with a view of illustrating, in a more conclusive manner, the opinion I have endeavoured to defend, than from the weight of the arguments I am about to examine.

The first reason alleged by those who contend that physiology is not the foundation of pathology, and one on which they seem to attach no small share of importance in support of their opinion, rests on the fact, that we are still ignorant of the proximate cause of the actions and functions of our organs; as, for example, of conception, generation, hunger, thirst, digestion, respiration, circulation, sensibility, &c. Hence, continues one of them, if the *nature* of these phenomena remains to this day a perfect mystery, with what propriety can we pretend to found upon the science which should, but does not, explain them, another science,—that of disease?

An answer to this objection, however, is not difficult to be found; for a knowledge of the nature of these phenomena, would imply a knowledge of first causes, to which no physiologist has ever pretended, or can ever pretend, to attain. But is it not betraying the weakness of a cause, to advance in its support an argument of this sort, when it cannot be denied, that important as this knowledge doubtless might be, for the explanation of the intimate nature of disease, it is nevertheless not indispensably necessary to the pathologist; since, without it, we are at all times able to ascertain the vital properties that are attached to each organ and tissue of the body, and become familiarly acquainted with the modifications occasioned in the same properties by the action of external and internal causes? What more than this can be required by the pathologist for the explanation of morbid phenomena, and the establishment of a correct system of therapeutics? It is a fact too obvious to need any comment in this place, that, in the investiga-

tion of vital phenomena, there is a point beyond which we cannot extend our inquiries, without incurring the risk of falling into the boundless field of hypothesis. It is at this point, gentlemen, that physiology terminates; when attempts are made to penetrate beyond it, the inquirer can expect to meet with nothing but obscurity and confusion, and must infringe on the province of the metaphysician. When viewed in this light, therefore, the science loses all claims to the title of positive, and necessarily ranks among those of a conjectural nature. The experience of ages having shown the inutility of aiming at this knowledge of first causes, and proved, besides, the possibility of establishing without it a rational and useful physiology, we should rest contented with, and make the best use in our power of, what nature has revealed to us,—the vital properties such as we notice them,—carefully study them in their normal state, and as modified by external agents, and cheerfully abandon the rest to the metaphysician. With these facts before us, it will not appear presumptuous to maintain, that in affirming that physiology cannot be regarded as the foundation of pathology, because we have not yet succeeded in attaining a knowledge of the first or proximate cause of our functions, these authors have hazarded an opinion, which, to say the least of it, is unsupported by facts or reasoning. Nor shall we find in analogy less reason for denying the force of the argument. If correct in reference to physiology and pathology, it should be found equally so when extended to the other sciences. A few words will suffice, however, to place the subject in its proper light. “Sensibility, irritability, and contractility, are in relation to organized (and living bodies,) what attraction, elasticity, and molecular affinity are to inorganic substances.” Now, it may be asked, who has ever asserted, that the properties to which we have last alluded, could not be made use of in the explanation of various phenomena, merely because philosophers have not yet been able to discover their first or proximate cause? And of what avail would have been the labours and discoveries of a Newton, a Lavoisier, a Davy, and a Thénard, had these natural philosophers and chemists waited, before establishing the principles of their respective sciences, and making the application of them to other departments of human knowledge, until they had discovered the nature of the first cause of phenomena, they have so diligently and accurately observed? From these considerations we are justified in concluding, that the correctness of the

opinion relative to the necessity of physiology as the foundation of pathology, is not in the least invalidated by any argument derived from our ignorance of the first causes of our functions. I therefore pass to the examination of another reason alleged by our opponents in support of their views.

By those who maintain that physiology is not the basis of pathology, it is asserted, that morbid irritation is not the mere undue increase of that of the normal state. In defence of this opinion, they adduce the following as an argument:—The morbid is always stronger than the physiological irritation: as, however, the latter *may* excite sympathies, whilst the former may exist without developing any, it follows, that the morbid is not the mere exaggeration of the physiological irritation, since were this the case, the sympathies would invariably be stronger in the former than in the latter. A careful attention to the subject, however, and an examination of living phenomena in health and disease, will serve to convince us, that this assertion, and the reasoning on which it is founded, is but ill calculated to destroy the soundness of the opinion I have endeavoured to support. Influenced by this belief, I should have contented myself with referring to some of the writings on the new doctrines, in which the assertion is, I believe, triumphantly refuted, were they of easy access; but as they are unfortunately but too seldom found in the hands of our physicians, I shall devote a few moments to an examination of the subject. Avoiding here a minute examination of the often contested question, whether there exists in morbid irritation something more than an increase in the manifestation of the vital properties,—a change or aberration in their nature,—it must be conceded, and no one has denied it, that the diseased irritation is always of greater intensity than that of the healthy or normal state. This point once established, it next becomes necessary to inquire whether the physiological irritation can excite sympathies, and the morbid one exist without any; and whether these circumstances can invalidate the correctness of the opinion, that the latter of these irritations is the exaggeration of the former. Now, it cannot be denied, that occasionally during the enjoyments of health, the natural but hidden connexions subsisting between the different parts of the system, become evident and appreciable, and that in some cases of disease, the sympathies usually excited into play remain in a quiescent state. But to every enlightened and observant physi-

cian, it must be evident, that such cases constitute but a few exceptions, which, it is true, are difficult to explain, to a general rule; since in the very large majority of instances, precisely the contrary is found to be the truth. It is very plain, that an argument founded on two exceptions, which, in the true spirit of philosophizing, so far from destroying a rule can only serve to confirm it, must not be regarded as of much force. Were it admitted to have some in the present case, there would be an end to all attempts at generalization; since all new facts militating in the least against a rule, would be sufficient to destroy it. With these reflections before us, we may, I believe, draw the following conclusions: the morbid is always more powerful than the physiological irritation—the latter, in general, excites no sympathies—the former, on the contrary, almost always excites them; hence, the morbid irritation is evidently only the exaggeration of the healthy irritation.

To this the same physicians have again objected, on the ground, that were such really the case, disease would be the exaggeration of health. This objection, however, is too absurd to need much comment in this place. As well might we assert, as is remarked by a judicious writer, that the natural philosopher regards a thunder storm as the exaggeration of fine weather, because he maintains, that between these two states of the atmosphere there is no difference, except that in the former a larger quantity of water, in a state of vapour, is condensed and amassed in a given space, and that more electricity is developed, and because he would add, that clouds are formed, accumulated, produce thunder, and are dissipated in the form of rain, in virtue of the same laws which preside during the calmest state of the atmosphere, over the evaporations of liquids, the condensation of vapours, and electrical attractions and repulsions.

That this simile is just, cannot I believe be contested; for when any organ of the body is inflamed, its function ceases, and yet the blood which now flows in excessive quantity to the affected part, is the same;—it is contained in the same vessels, and under the influence of the same nerves as that which circulates in it during its normal excitation; and in both these states the painful impression produced by the contact of stimulants, is felt by the same nerves and transmitted to the same centre by virtue of the same vital laws.

In both instances then, we discover that an excess of the same elements, a due quantity of which is requisite for the proper mani-

festation of certain phenomena,—in the former, vapour and electricity, in the latter, animal fluids and nervous power, will cause an evident change in those phenomena. In both instances there will be an exaggeration in the manifestation of the elements giving rise to the phenomena in question, without, however, leading to the conclusion, either that disease is the exaggeration of health, or a thunder storm that of fine weather.

From these circumstances, we derive an additional proof that pathological irritation, in which we only discover a greater quantity of blood or white fluids, or nervous powers, or all these combined, than in the normal irritation, is only the mere exaggeration of the latter.

By these authors it is maintained, that pathological are so different from physiological facts, that they cannot with the least propriety be assimilated with each other; and this according to them may be adduced as a further proof, that physiology is not the basis of pathology. I am disposed to believe, that a moment's reflection will serve to convince you all, gentlemen, that no more weight should be attached to this than to the arguments we have just examined; for although it may be admitted (and no one, so far as my information extends, has ever denied it) that the state of health differs from that of disease,—the condition of the parts being different in consequence of a change in their vitality and in the nature of their products, it is nevertheless very certain, that the laws of innervation and circulation in the same parts, and the results of these two fundamental actions of the economy, are the same in health as in disease, and only vary in respect to quantity, whatever peculiarity may be thought to exist in the nature of the disease. If therefore this proposition is admitted to be founded on a correct view of the animal economy, it naturally follows, that the laws which regulate life during a healthy condition of the system cannot be so widely different from those which govern it when assailed with disease, however different in appearance physiological phenomena may be from those of a pathological nature. Mr. Prus, one of the warmest supporters of the opinions I am opposing, himself admits, that every disease consists in a modification of the vital properties of the tissues,—properties, it should be recollected, which the physiologist contents himself with noticing without inquiring into the nature of their first cause. It results, therefore, even from his view of the nature of disease, and distinct from

every other consideration, that an acquaintance with the physiology of the healthy state will be found of the utmost importance to the pathologist ; as it will enable him to perceive the changes undergone in the vital properties during a morbid condition of the system, as well as those that have occurred in the vital actions ; in a word, it will enable him to judge of the organic and vital modifications manifested in the part principally as well as in those secondarily affected. *He*, therefore, who will attempt to study pathology, without a preparatory knowledge of the functions in a state of health, will inevitably fail in attaining the object he had in view. Hence it may safely be concluded, even from the meaning Mr. Prus himself has attached to disease, that the argument founded on the dissimilarity of physiological from pathological phenomena cannot weaken in the least the opinion I have endeavoured to support. But the question before us may, I believe, be examined in another point of view. It is especially by a previous acquaintance with the physiology of the healthy state, that we are enabled to appreciate the effects of the modifiers of the vital properties ; namely of external agents, and internal causes, which must all, at least so far as we are able to discern, and whatever modifications may be thought to take place in the part affected, increase or diminish the manifestation of these properties ; but as we cannot act on the vital properties without acting on the tissues, our study reduces itself to an investigation of the action of external agents on the tissues with which they are placed in contact, and of the influence of these on other parts. Pathology then is founded on a knowledge of the appreciable phenomena of the living body, which constitutes the science of Physiology. All the rest in disease, besides increase or diminution in the manifestation of the properties of the tissues, is a mystery which the physiologist has not the vain pretension to solve, and which is not essentially necessary for establishing a useful system of pathology and a successful method of practice. Pathological phenomena, therefore, are not regulated by other laws than those of a physiological nature, and intending to recur to the subject in a subsequent part of this address, I pass to the consideration of another reason alleged by the same authors in support of their opinion ;—namely, that morbid sympathies, to which the school of Broussais attaches so much importance as furnishing data capable of leading to a knowledge of the seat and nature of disease, are not the mere exaggeration of the healthy sympathies. Here again he appears, however, to have

erred, both in his premises and in the deductions which he has drawn from them. If the sympathies developed during disease are not *all* the undue increase of those manifested in the healthy state, it would betray great pathological and practical ignorance to deny that many among them are. But I would even go further, and maintain, that it cannot be asserted, with any semblance of reason, that the sympathetic connexions shown by disease to exist between different parts of the body, did not prevail, though in quiescent state, during a healthy condition of the system. The further, indeed, we proceed into the investigation of the animal economy,—the more our knowledge of its laws extends, the less are we justified in admitting the great difference contended for by some, between morbid and healthy sympathies; and it does not seem to me unphilosophical to conclude, that the appearance of sympathies during disease which were not observable during health, proves only that they required, for their manifestation, a degree of excitement obtained only from a morbid condition of the organs.

However this may be, Mr. Prus errs in attributing to the defenders of the physiological foundation of pathology, opinions which, so far as my information extends, they have never entertained;—for no one among them has ever asserted that *all* morbid sympathies were the simple exaggeration or augmentation of those manifested during the enjoyment of health; but only that they took place in both conditions of the system, through the medium of the same laws,—laws which it is the province of the physiologist to investigate. Nor have they denied, that in general the local signs of disease were of greater utility in establishing a correct diagnosis, than those of a purely sympathetic kind; such an opinion could never have been hazarded but by one totally destitute of clinical experience. But even admitting this to the fullest extent, it does not follow that the sympathetic signs should be neglected by the pathologist; since they not unfrequently constitute the only sure guides to a knowledge of the seat and nature of disease. Should this, therefore, be conceded, it will serve as an additional proof of the importance of physiology; since, as we have already seen, it is by the aid of this science alone, that we are enabled to attain a correct knowledge of these sympathetic signs, both in a state of health and disease. That science, therefore, which aids us so powerfully in acquiring this knowledge,—which teaches us the influence of certain organs over others,—to predict the effect of an action on

one tissue when the agent by which this action is produced is applied to another part of the body; to reason on the changes that have taken place in the functions,—and on the relation which subsists between their appropriate organs and other parts,—as well as on the action of modifiers,—without all of which medicine falls to the level of a mere empiricism;—that science, I repeat, which teaches us all this, must surely be regarded as the foundation of pathology; and yet, gentlemen, it is this very science which Mr. Prus and those who have adopted his views affect to hold of such secondary importance in the explanation of morbid phenomena, as to place it on a par with mechanics, natural philosophy, and chemistry!

It is true that simple observation, conducted by an individual unacquainted even with the first principles of physiology, has often enabled him to arrive at a knowledge of the importance and value of the signs of disease, as well sympathetic as local;—thus aiding him in establishing a correct diagnosis. But whilst admitting this, as also the absolute necessity of clinical observations, I must still be allowed to maintain, that such a knowledge acquired in this way, must require a space of time, opportunities, and a natural capacity, which it falls to the lot of few members of the profession to enjoy; and that between the simple enunciation of a fact and the power of explaining its origin, and its connexion, as cause or effect, with other facts,—in a word, of applying this knowledge to the investigation of other phenomena of a similar or contrary nature, there exists a difference in point of importance which cannot have escaped the attention of philosophical observers. This power of explanation, therefore, being the result of a physiological knowledge, shows at once the utility of this science in the investigation of morbid phenomena. Every individual may observe that stimulating ingesta produce apoplexy or gastritis, or when used in the latter disease will aggravate the existing cephalic or other symptoms; for these are mere facts easily cognizable to the senses. But it is only physiology which will enable us to explain them, by pointing out the connexion subsisting in health, and rendered more manifest in disease, between the mucous membrane of the stomach and the brain, meninges, or other parts of the system;—the manner in which the exaltation of the vital properties of the former tissue will excite those of the encephalic organs, and the influence which this excitement exercises over other organs and tissues of the body. If

therefore the nature and connexion of these phenomena (and it is plain that the same reasoning will apply to every other) can only be explained by means of physiology, it will no longer appear so unreasonable, as some have maintained, to conclude, that pathology, which results from the combination of these phenomena, is founded on physiology; and that too, although some of the morbid sympathies may not, in the present state of our knowledge, be found to consist in the mere augmentation of those of health, or may by some be regarded as distinct from and independent of the latter.

But in stating that physiology is not the basis of pathology, because the sympathies of the diseased are not the undue augmentation of those of the healthy state, they have committed an error which I the more willingly notice in this place, as I will thus be able to prevent any misconception respecting the precise meaning I attach to some of the remarks that precede. By advancing such an argument, they evidently seem to regard physiology as simply the science of health; whereas, as the etymology of the word indicates, it is that of life, whether in a state of health or disease;—it is that science which, deriving its data from a state of health as well as from that of disease, endeavours to establish a knowledge of the laws of life; or to use the language of an intelligent writer, it is the science, which, taking for its basis the organization and the vital properties of the organs, employs this preliminary knowledge to explain the functions in a normal as well as in an abnormal state. Such I believe is the idea that should be formed of physiology, and when in its support the names of a Haller or of a Bichat may be adduced, it is almost needless to remark that the authority of Mr. Prus or Mr. Miquel, or common usage, which I am aware sanctions the meaning he has attached to the word, can never serve to invalidate its correctness. What, in fact, are the effects of those vivisections, which, since the days of Haller, have been resorted to by many physiologists, with the view of ascertaining the functions of our organs? Must they not be regarded as of a pathological nature; and if such be the true light in which they should be held, does it not follow that in the opinion of those who resort to such experiments, physiology is a compound of a healthy and diseased state of the functions? A celebrated English physiologist of the present day, Mr. Edwards, remarks, that if physiology were limited to the phenomena of health, it would lose the greatest part of its utility;—an observation, the truth of which must be admitted by all

who have devoted to the subject the degree of attention to which it is so justly entitled, and which should ever be borne in mind by those engaged in the investigation of vital phenomena. And yet, when we consult our most popular treatises on physiology, we find them, with very few exceptions, deficient in the most useful part of the science,—the history of the functions when under the influence of external agents.

Without enlarging on this important topic, it will only be necessary to remark, that from a due attention to all that has been said on the subject of physiology, we are justified in concluding, that all organic and vital,—habitual and extraordinary,—regular and irregular modifications, produced by the action of external and internal, natural and artificial, physical and chemical causes,—all particular or general phenomena resulting from these modifications,—all in fact which supposes organization and life, enters within the extensive domain of this useful science. But although physiology should be regarded as having for its object the phenomena of a morbid as well as those of a healthy state, it is nevertheless certain, that the latter constitutes the point from which, in undertaking the investigation of the laws of life, all inquirers should start; because without a perfect acquaintance with the phenomena manifested during a healthy performance of the functions, it would be impossible to judge of the changes that take place in the properties of the same tissues, when assailed with disease, or of the structural alterations that have supervened in them. But since in our science, as in every other, the injudicious application of terms has invariably led to the most unfortunate consequences, and since the phenomena of life, during a healthy state of the system, cannot be expressed by the same term as the same phenomena when deranged by a morbid condition of the system, without incurring the risk of involving the whole subject in obscurity, it has not been improperly proposed to apply the terms physiology of the healthy state or simply physiology to designate the history of the functions during their normal performance, in contradistinction to pathological physiology, which is made use of to denote the history of the same functions in their abnormal or morbid condition. In conclusion, gentlemen, if I have not extended beyond just limits, the idea that should be formed of the science of physiology, it will appear evident to you all, that since it is the tissues, vital properties, and functions observed in the healthy state, which are affected in disease, since life and

consequently health, are maintained through the influence of the same agents that produce disease; or in other words, since this state is a modification of life, consequently a physiological modification;—the organic alterations being purely secondary phenomena, over which invariably preside the modifications of the vital properties, it follows, that in endeavouring to explain the origin and connexion of symptoms,—when ceasing to be empirics we strive to acquire a correct view of the pathology of any complaint, our reasoning must inevitably be based on physiological principles. Hence, permit me once more to repeat, pathology is founded on physiology.

In the preceding remarks it has been my desire to show that a knowledge of physiology is indispensably necessary to pathology, and to point out the fallacy of objections offered by some authors against the admission of this opinion. Nor could much difficulty be experienced in proving, were it not from the fear of trespassing on your patience, that the remainder of their arguments are of no more weight than those already examined, and consequently little calculated to attain the objects they had in view. Before dismissing this part of our subject, however, I must be allowed to advert briefly to a circumstance sufficient, I believe, to indicate the little regard that should be paid to the opinion of those who contend for the erroneousness of regarding physiology as the foundation of pathology. Thus, although pretending that this science cannot lead us to know *why* a disease occurs, or give us an insight into its precise nature, they admit that it may be of service in teaching the manner in which this disease may affect other parts of the body; or in other words, that it will aid us in accounting for the symptoms,—which in the present state of our knowledge is admitting as much as we can well desire; since in accounting for the symptoms, we insensibly arrive at the seat and nature of the disease. But, as if to crown all by the most glaring inconsistency, it will be found on a perusal of Mr. Prus's essay to which I have already so frequently referred, that after occupying a considerable time in attempting to refute the opinion of those who assert that physiology is the basis of pathology, he endeavours to establish a system of medicine, altogether founded on a knowledge of the vital properties;—disease with him consisting in nothing but an alteration of these properties.

But if a familiar acquaintance with physiology is indispensably necessary to the establishment of a rational system of pathology,

the latter has not unfrequently served to indicate the uses and functions of various parts of the animal machine, and from this reciprocity of service we derive an additional proof of the close alliance of these two sciences, or more properly of these two branches of the same science, and of the correctness of the position I have endeavoured to establish, that the knowledge of the functions results equally from the notions furnished by the state of health, as well as from those derived from the study of the system when assailed with disease.

It is now more than twenty-two centuries since the father of medicine, the divine Hippocrates, advanced the opinion, that the most positive knowledge in physiology must be derived from medicine; and subsequent experience has only served to confirm the correctness of this remark; for some of the most intricate and obscure points of physiology have been elucidated by pathological phenomena. That this is not a groundless assertion, might be easily and fully demonstrated by offering here a survey of our physiological knowledge; but as such an extended examination of the subject would be unnecessary, and lead me greatly beyond the limits to which I am restricted, I must content myself with briefly enumerating a few of the most prominent points which present themselves to my memory. Thus, it may safely be affirmed, that pathology has effected more towards elucidating the nature of the communication between the fœtus and its parent, of the placenta in cases of twins, and the formation and nature of the meconium, than all the speculations in which physiologists had indulged for centuries before. To what source, if not to this science, are we to refer the present state of our knowledge respecting the functions of organic life, and of the nerves presiding over these; as well as respecting the action of the nerves of animal life. Pathological facts also originally gave the idea of the decussation of the nervous fibres of the brain, and of the existence of nerves of motion and sensation. To them, likewise, we are to look for information relative to the precise seat of the intellectual faculties, and from them alone can the phrenologist ever expect to derive confirmation of his views respecting the plurality of the cerebral organs, and of the mental faculties. It is from pathology, in like manner, that the physiologist has been enabled to derive something positive respecting the part performed by the stomach in the act of vomiting; the elective faculty possessed by that organ over certain substances; the action

of the intestines, and their co-operation in the function of digestion, &c. Examine your books of physiology, gentlemen, published anteriorly to the present century, or to the time when pathology began to be studied as a true science and called to its aid morbid anatomy, without which it would ever have remained purely conjectural, and you will without difficulty find, from the deficient knowledge manifested on those points of physiology, to which I have referred, that the prediction of Hippocrates has in respect to them been fully realized.

But let it not be said that physiology owes little to pathology, because the greater number, if not all the facts enumerated, have been discovered or confirmed by experiments on living animals. As we have already seen, such experiments constitute, at best, but an artificial pathology, much less to be relied upon in its results or in the deductions to be drawn from these than the other; since the violent pain inflicted on the unfortunate victims, necessarily occasions such a derangement in all their functions, as must, in great measure, mask the results of the experiment. When, independently of this circumstance, we bear in mind the difference in the degree of susceptibility,—in fact in the organization of the lower orders of animals, compared with the human species, we are naturally induced to attach a greater share of importance, in forming an opinion of the nature of a function, on facts furnished by a pathological state of the organs entrusted with these functions in our own species, than by a morbid state artificially inflicted on animals of a different kind.

Having thus expatiated somewhat at large, on the importance, to the physician, of a complete acquaintance with physiology, it can hardly be required of me to impress on the minds of the younger members of this society the indispensable necessity of applying themselves with the utmost assiduity, to the study of this science, even, if possible, before passing to that of pathology; since from what has already been said on the subject, it may readily be inferred, that the latter, when not founded on physiology, can never lead to the establishment of a successful system of therapeutics.

This very naturally leads me, gentlemen, to the painful reflection, that in the system of medical instruction pursued in this country, the science of physiology has not, in general, received the degree of attention to which, as we have already seen, it is so justly entitled. To be convinced of the truth of this remark, it will only be neces-

sary to recollect, that in not more than two or three of the fourteen medical colleges established in these states, is it taught as a separate branch, and in few, so far as my information extends, in its application to the science of disease; and yet were those on whom devolves the responsible duty of superintending the education of such of our youths as devote themselves to the arduous studies of medicine, to bear steadily in mind the immense advantage resulting to the latter from an acquaintance with the principles of physiology, or capable of judging of the deficiency, in that respect, of many of our physicians, by which they are daily betrayed into erroneous pathological views, necessarily leading to wrong and even sometimes to dangerous practice, they would not hesitate to hold it up, in imitation of the experienced governments of Europe, as one of the most essential branches for graduation, and make the necessary provisions for having it taught by intelligent and learned professors.

I am perfectly aware, that under existing circumstances, and particularly in consequence of deficient legislative regulations relative to the practice of medicine in these states, many difficulties might be encountered by some of our colleges in their attempt towards the salutary reform to which I have alluded, and that many objections have been verbally alleged against the addition of professorships of the Institutes of Medicine, of which, as you know, physiology constitutes the principal branch, to the chairs already established in our schools. Yet it is not unreasonable to believe, that with perseverance, aided by a perfect understanding on the part of those intrusted with the government of our colleges, many of those difficulties might be surmounted, and laws adequate to the enforcement of necessary regulations obtained from the state legislatures. But even admitting that we should not look forward, for many years, to such happy results, I am still inclined to the belief, that many of the reasons too frequently alleged against the creation of additional professorships—an improvement in our system of instruction which, in the present state of medical science, may be said to be imperiously demanded, are not entitled to the degree of attention usually claimed for them. As time will not allow me to examine these in detail, I shall only dwell a short time on a few of those that are regarded as the most powerful. Thus it is observed that in some of the schools of Europe the Institutes of Medicine are not taught separately; that many of our most intelligent and skilful practitioners have not enjoyed the benefit of any other medical education than that afforded by our colleges, and that too at a time when the

course of instruction in these was more defective than at the present day; that a chair of the medical institutes has in general been found of little real utility, and in fact a dead weight in our schools, and that in a few of them in which it had formerly been established, it was subsequently found expedient to suppress it altogether, or to annex its duties to the chair of the practice of medicine; and, lastly, that the expenses of a medical education in this country are already too great to justify the addition of any other chair.

It must be evident to every reflecting mind, gentlemen, that the first of these reasons cannot be considered as meriting serious attention; since, if it be necessary to follow the example of a foreign nation as regards the adoption of any system of medical instruction, we should carefully select that which is likely to lead to the most favourable results, and as carefully avoid such as are imperfect and founded on a too contracted view of the subject. The question resolves itself into this—whether the branches to which your attention has been called, are not essentially necessary to be taught, or whether they cannot properly be dispensed with. If, on mature reflection, it be found that they are not essential, then we may safely continue to pursue the old system acted upon in our colleges; but if, on the contrary, it can be found, that they are of great utility to the physician, of what avail to us can be thought the example of a few schools in Europe, which, not having followed the course of gradual improvement pursued by the majority of medical institutions, have hitherto refused to admit the necessity of any reform, and adhered pertinaciously to their old system of instruction. Now, that a knowledge of physiology is essentially necessary to the pathologist, is, I sincerely believe, a fact established beyond a possibility of doubt; consequently, it is natural to infer that, at least as regards this branch, the example of those schools so confidently cited by the opponents of the reform, is little calculated to prove its utility. But the question may be examined under another point of view: it is a fact sufficiently notorious to every individual who has taken the trouble to inquire into the systems pursued in the different schools of Europe, that those among these schools in which the institutes of medicine are not taught as a separate branch, are very far from being such as enjoy a distinguished reputation, and in which we should with any prospect of success, seek extended and useful information. Whilst, on the contrary, it will be found, that in the most celebrated among them, particularly those of France, Germany, and Italy, which offer the greatest advantages

to students, are established on the most judicious plan, and to which even *our* youths not unfrequently repair for instruction, physiology and pathology, as well as clinical medicine, and other branches too often neglected in this country, but which it is not my duty to specify in this place, are regarded as of the utmost necessity, and a knowledge in them held up as indispensable for graduation.

As regards the second reason urged against the necessity of adding to the chairs already established in our colleges, one devoted to the institutes of medicine, I am willing to admit that many physicians enjoying now a high and merited reputation among us, for practical skill, have never enjoyed any other, than the limited instruction obtained in this country, during the period of infancy of our schools. But inquire of these physicians, and if they be conscientious and susceptible of the finer feelings of our nature, they will not disguise from you, that the commencement of their professional career, before an extensive experience had rendered them familiar with the many modifications of disease,—a familiarity often purchased at the risk of human life, was a continual scene of mental anxiety, arising from a deficient preliminary medical instruction. But in what was this instruction deficient, if not principally in regard to physiology, which we have seen is so essential to the establishment of a correct pathology, itself leading to a successful practice? Is it not natural to conclude, therefore, that the student who will add to clinical instruction, the importance of which cannot be doubted, a familiar acquaintance with the institutes of medicine, will not labour under the same disadvantages as the former, be much earlier a sound pathologist and a skilful practitioner, and suffer in a much less degree those anxieties, the torments of which can only be judged by those who have been so unfortunate as to feel them? And such, gentlemen, your own personal observations will teach you to be the truth, for on an extended survey of medical characters, you will in general find, that those have distinguished themselves earlier as medical practitioners, who were more deeply versed in physiology and pathology.

To those who might feel disposed to lend some attention to the third objection to which I have alluded, it may be remarked, that the utility of a separated Professorship of the Medical Institutes, has been denied—not by students, not by the profession at large—but by some of the professors in our schools, who, being aware that the number of chairs cannot in justice be increased, without a diminution of the sums they annually receive from their class, are inte-

rested in upholding the old system, which to them has been so profitable, and should, consequently, not be regarded as entitled to be heard on a matter of the kind. But even supposing that students were to complain of the irksomeness of attending so many lectures, in order to be received as candidates for graduation, their complaints should not be held as of much weight, because they are seldom aware, at the time, of what is of advantage to them, and not able to judge themselves of what they ought or ought not to study. Their object being to pass an examination, and seldom permanent or solid instruction, it is natural they should prefer attending to few than many branches. Time and experience, however, corrects this defective judgment, and it is not hazarding too much to say, that after a few years of application to the duties of their profession, the large majority of them regret their former inattention to branches that are taught, and still more the circumstance of not having been instructed in physiology and pathology. Setting aside, therefore, professors and students from among those capable of deciding on the utility or inutility of the medical institutes, there remains the trustees of our colleges. Of these, it will simply be necessary to remark, that, although for the most part animated by laudable desires, being, in general, members of other professions, they are totally incompetent to judge on a subject of this nature; and should, in all instances, have recourse to the counsel of others, who from their ordinary pursuits are alone to be viewed as the legitimate judges on the question before us. I need hardly remark, that I allude here to physicians in general; the opinion of the enlightened and liberal part of whom may safely be affirmed to be decided in favour of the necessity of teaching the Institutes in our colleges.

If it has been thought expedient many years ago, (for we hear of no such design at the present day,) to abolish the chair of the medical institutes that had been established in one of our colleges, and to annex its duties to that of the practice of medicine, the circumstance should be ascribed, not to necessity, but to other causes which cannot be explained in this place; and the change, so far from being regarded as a fit precedent, should be held as an unwise and unfortunate step. In the short space of four months, it is of the utmost impossibility that a professor should teach two such extensive branches as the institutes and the practice; and the consequence is, that he must abandon altogether, as has been done, the idea of lecturing on the former, or deliver an imperfect course on both: in

either of which cases, the student is the sufferer. Besides, if the physiology taught thirty years ago was judged of little utility to the physician, a fact which I am very far from denying, the same opinion should not, as I have endeavoured to show, be formed of that of the present day; consequently, the example of that time should not only be carefully avoided, but if possible the fault committed then should be corrected now. In conclusion it may be observed, that if in any case a chair of the institutes is found to be really a *dead weight*, it can only arise from the improper manner in which this branch is taught. Whoever will amuse the student with long lectures on all the theories proposed in explanation of the mysteries of generation, or devote a week on the vitality of the blood and other subjects of such secondary importance, will slipper away a time that might be much more advantageously occupied at something else. But in such a case, it is the teacher who is a dead weight to the school, and not the chair he occupies, for we have already seen that when properly taught, physiology and pathology are always of the most decided utility to the physician.

Passing now to the third and last objection, it may be observed, that in an age so distinguished as the present for the zeal with which the sciences in general, and medicine in particular, are cultivated, and for the state of perfection to which they have attained, and in a country which bids fair, ere many years have passed away to rival in arts and sciences, as it does already in many other subjects, the oldest countries of Europe, it should be the ambition of every school to adopt such regulations as will ensure to the student an opportunity of acquiring the most perfect knowledge of all the branches requisite for the safe practice of his profession, at whatever price such a knowledge is to be purchased. In consequence of such a regulation the number of pupils may, it is true, for a time diminish—cheapness with many who embrace the study of medicine, being looked to as preferable to instruction; but, what is of greater importance, the diplomas of such a college will acquire an increase of value in the mind of every intelligent member of society, and not a long time will elapse before this circumstance, aided by the celebrity of its professors and legislative regulations, relative to the practice of medicine,—the necessity of which must eventually be perceived, will cause the tide of popularity once more to flow in its direction, and establish on the firmest basis its claims to unrivalled pre-eminence.

In thus expressing my opinion on the subject to which I have

thought it my duty to call your attention, I feel confident, from an extended range of inquiry, that I have done little else than repeat the sentiment of the greater number of enlightened and disinterested physicians in this country. To one, indeed, who has not remained a stranger to the progress of medical opinion among us, it need hardly be told, that the spirit of improvement is, at this moment, awakened in many parts of this extensive union; that it animates the majority of the profession, who alone are entitled to decide on matters connected with this subject; and that it must, at a period not very remote, prevail over the contracted views, rooted prejudices, or unjustifiable supineness, of many of those in whose hands the fate of our colleges may rest. Of the manner in which this desired object is to be accomplished, I leave to abler hands to decide; contenting myself here with simply remarking, that not a few advantages would likely result from a general convention of delegates from every medical institution of the country;—the idea of which has originated in one of the eastern states, and cannot fail to meet the approbation of every sincere lover of our art. By such a plan, the voice of the profession from Maine to Louisiana, and from east to west, will be heard, and the necessity of additional requisites, independently of other points of no less moment, be fairly discussed, and I dare hope, established beyond the possibility of contradiction.

Be this, however, gentlemen, as it may, in venturing these few remarks on a subject of so important and delicate a nature as medical education, I hope I shall not be regarded as biassed by prejudice, or influenced by ill-will towards the medical institutions of this or other states, or by unfriendly feelings towards the individuals, who fill with so much credit to themselves and honour to their country, the chairs to which they have been appointed. So far from this, no one rejoices more at the unexampled prosperity of the former, nor more highly values the labours of the latter. My only object has been to show the utility to the pathologist, of an extended knowledge of physiology, and the necessity of having it properly taught in our colleges;—thus adding my feeble and disinterested testimony in favour of a reform imperiously called for by the improved state of medical science,—a reform, indeed, the necessity of which is daily increasing the number of its advocates.





